CSC-5500

Multi Input Scaler

Operation Manual

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person to walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

REVISION HISTORY

VERSION NO.	DATE DD/MM/YY	SUMMARY OF CHANGE
VR0	27/06/13	Preliminary Release
VS1	24/07/13	Updated format/diagrams

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1. INTRODUCTION

This Multi Input Scaler has Composite Video, Component Video, PC (VGA), and HDMI inputs and can switch and scale the signal to HDMI or VGA with audio outputs. It supports HDMI output resolutions up to 1080p/WUXGA and Analog Digital Conversion (ADC) and Digital Analog Conversion (DAC) allowing a wide range of AV signals to be displayed on a HDMI or VGA display. Further, the On-screen Display (OSD), IR remote, RS-232, IP and on-panel controls make this product very versatile.

2. APPLICATIONS

- Analog and digital source integration
- Upscaling standard definition video for high-definition displays
- Conference centres
- Lecture halls
- Schools and universities

3. PACKAGE CONTENTS

- Multi Input Scaler
- Remote Control (CR-122)
- IR Extender Cable
- D-Sub to RCA Adaptor Cable
- Power Adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

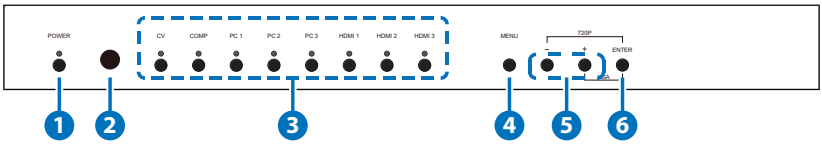
Source equipment such as Blu-ray/DVD players or PC/Laptop and output to displays, AV Receivers or active speakers.

5. FEATURES

- Supports switching and scaling of multiple AV inputs to HDMI or PC/HD outputs
- Supports EDID and HDCP
- Supports 3D de-interlace, noise reduction and 3D comb filter
- Supports frame rate conversion
- Supports RS-232, IP(Telnet/Web GUI) and IR controls
- Supports output timing hot keys switching
- HDMI compatible with DVI
- Supports Digital to Analog (DAC) and Analog to Digital (ADC) Audio conversion
- Supports Non-HDCP signal of Apple computers

6. OPERATION CONTROLS AND FUNCTIONS

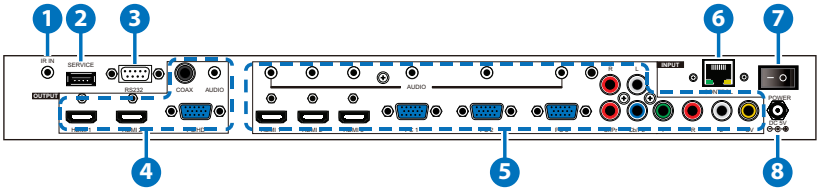
6.1 Front Panel



1. **POWER Button and LED:** Press this button to switch the device on or to set it to standby mode. Once the device is connected to an active power supply and the Power Switch on the back panel is turned on, the LED will illuminate and the device will switch on automatically.
2. **IR Receiver Window:** Receives only the IR signal from the remote control included in the package.
3. **INPUT Buttons and LEDs:** Press these buttons to switch directly to the required source. An LED will illuminate to indicate the selected input source.
4. **MENU:** Press this button to enter the On-screen Display (OSD) menu.
5. **Plus/Minus (−/+) Buttons:** Press these buttons to navigate down and up in the OSD menu.
6. **ENTER:** Press this button to confirm the selection in the OSD menu.

   Note: Press this button simultaneously with the '+' (plus) button to instantly switch the output to XGA resolution or with the '−' (minus) button to instantly switch the output to 720p resolution.

6.2 Rear Panel



1 **IR IN:** Connect the supplied IR extender to receive the IR signal from the included IR remote. Ensure that the remote is within the direct line-of-sight of the IR extender.

2 **SERVICE:** Reserved for manufacturer use only.

3 **RS-232:** Connect to a PC/Laptop or RS-232 control system to use RS-232 commands to control the device (See Section 6.5 for details on RS-232 commands).

4 **OUTPUT**

1) HDMI 1/2: Connect to an HDMI display or AV Receiver for video and/or audio output.

2) PC/HD: Connect to a monitor/display for video output. For HD (Component) output, use the supplied D-Sub 9pin to 3 RCA adaptor cable for HD resolutions from 480p~1080p.

Note: When the selected HDMI input source signal has HDCP content the VGA/Component output will not display any image.

3) COAX: Connect to an amplifier or active speakers for audio output in digital format.

Note: When the input audio source signal is in bitstream format and the AUDIO SOURCE setting is set to AUTO in the OSD menu, the coaxial output will bypass the input audio signal including compatible surround sound formats.

4) AUDIO: Connect to an amplifier or active speakers for audio output in stereo format.

5 **INPUT**

1) HDMI 1/2/3: Connect to HDMI sources such as Blu-ray/DVD player for both video and audio signal conversion.

2) PC 1/2/3: Connect to a PC/Laptop source for video signal input with a D-Sub 15pin cable.

3) 3.5mm Mini-jacks: Connect to source's L/R output with 3.5mm mini-jack for audio signal conversion.

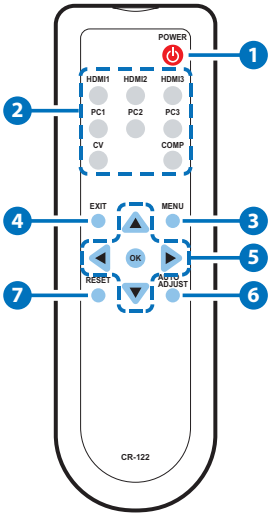
Note: For HDMI signals you can select in the OSD Menu whether you require audio from the HDMI (AUTO) or from the analog audio inputs (EXT)

4) YCbCr/YPbPr + L/R: Connect to source equipment such as a DVD player for both video and audio signal conversion.

5) CV + L/R: Connect to a composite video source such as a video/DVD player for both video and audio signal conversion.

6. **CONTROL:** This port is the link for Telnet or Web GUI controls, connect to an active Ethernet link with an RJ45 terminated cable
7. **POWER:** Switch this power toggle to turn on and activate the device or turn off to shut it down.
8. **DC 5V:** Connect the power adaptor included in the package to the device and plug it into an AC wall outlet for power supply.

6.3 Remote Control



1. **POWER:** Press this button to switch the device on or to set it to standby mode.
2. **HDMI1/2/3, PC1/2/3, CV and COMP:** Direct source selection keys. Press one of these keys to switch to the required source.
3. **MENU:** Press this button to enter the OSD menu.
4. **EXIT:** Press this button to exit the menu or the current selection in the OSD menu.
5. **OK & ▲▼◄►:** Press OK to confirm the selection or press the arrow buttons to navigate the OSD menu. When the OSD menu is not active, use the LEFT/RIGHT (◄►) to control the volume level.
6. **AUTO ADJUST:** Press this button when the image being outputted does not correctly fit the display's screen. The device will auto adjust the image to fill the screen.
7. **RESET:** Press this button to reset the device back to the default settings.

6.4 RS-232 Protocols

Multi-Input Scaler	
PIN	**Assignment**
1	NC
2	Tx
3	Rx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

▶
◀

Remote Control	
PIN	**Assignment**
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 19200bps
Data bit: 8 bits
Parity: None
Flow Control: None
Stop Bit: 1

6.5 RS-232 and Telnet Commands

COMMAND	DESCRIPTION	
S POWER 0/1	0=OFF	1=ON
R POWER	Reports the numeric equivalent for POWER setting (as above)	
S SOURCE 1~8	1=HDMI 1 2=HDMI 2 3=HDMI 3 4=YPbPr	5=VIDEO 6=PC 1 7=PC 2 8=PC 3
R SOURCE	Reports the numerical equivalent for SOURCE setting (as above)	
S OUTPUT 0~21*[1]	0=640×480 1=800×600 2=1024×768 3=1280×768 4=1360×768 5=1280×720 6=1280×800 7=1280×1024 8=1440×900 9=1400×1050 10=1680×1050	11=1600×1200 12=920×1080 13=1920×1200 14=480p 15=720p6@0 16=1080i@60 17=1080p@60 18=576p 19=720p@50 20=1080i@50 21=1080p@50
R OUTPUT	Reports the numerical equivalent for OUTPUT setting (as above)	
S SIZE 0~6	0=OVERSCAN 1=FULL 2=FOLLOW INPUT 3=PAN SCAN	4=LETTER BOX 5=UNDER 2 6=UNDER 1
R SIZE	Reports the numerical equivalent for SIZE setting (as above)	

COMMAND	DESCRIPTION
S INPUT HDCP 0/1	0=ON 1=OFF
R INPUT HDCP	Apple Computers Only. Reports the numerical equivalent for INPUT HDCP setting (as above)
S CONTRAST 0~60	Sets the numerical equivalent for CONTRAST setting (0~60)
R CONTRAST	Reports the numerical equivalent for CONTRAST setting
S BRIGHTNESS 0~60	Sets the numerical equivalent for the BRIGHTNESS setting (0~60)
R BRIGHTNESS	Reports the numerical equivalent for the BRIGHTNESS setting
S HUE 0~60	Sets the numerical equivalent for the HUE setting (0~60)
R HUE	Reports the numerical equivalent for the HUE setting
S SATURATION 0~60	Sets the numerical equivalent for the SATURATION setting (0~60)
R SATURATION	Reports the numerical equivalent for the SATURATION setting
S SHARPNESS 0~30	Sets the numerical equivalent for the SHARPNESS setting (0~60)
R SHARPNESS	Reports the numerical equivalent for SHARPNESS setting
S NR 0~3	0=OFF 2=MIDDLE 1=LOW 3=HIGH
R NR	Reports the numerical equivalent for the NOISE REDUCTION setting (as above)
S VOLUME 0~100	Sets the numerical equivalent for VOLUME setting (0~100)
R VOLUME	Reports the numerical equivalent for VOLUME setting

COMMAND	DESCRIPTION
S AUDIO DELAY 0~3	0=OFF 2=110ms 1=40ms 3=150ms
R AUDIO DELAY	Reports the numeric equivalent for the AUDIO DELAY setting (as above)
S AUDIO MUTE 0/1	0=ON 1=MUTE
R AUDIO MUTE	Reports the numeric equivalent for the AUDIO MUTE setting (as above)
S HDMI AUDIO 0/1	0=AUTO 1=EXT
R HDMI AUDIO	Reports the numeric equivalent for HDMI AUDIO setting (as above)
S KEY LOCK 0/1	0=ENABLE 1=DISABLE
R KEY LOCK	Reports the numeric equivalent for KEY LOCK setting (as above)
S FREERUNCOLOR 0/1	0=BLACK 1=BLUE
R FREERUNCOLOR	Reports the numerical equivalent for the free run color setting (as above)
S RESET 1	Sets the numerical equivalent for RESET setting (as left)
PORT 0~8	0=LAST MEMORY 5=VIDEO 1=HDMI 1 6=PC 1 2=HDMI 2 7=PC 2 3=HDMI 3 8=PC 3 4=YPbPr
ST	Checks the FIRMWARE version and SOURCE information: 0.00~x.xx SOURCE: HDMI ~ PC3 PORT ON: LAST ~ PC3
VOL +	Raises the volume level (VOLUME * IS SET)
VOL -	Lowers the volume level (VOLUME * IS SET)
QUIT	Exit. (Telnet Only)

Note:

1. *Resolution settings 0~13 are RGB encoded. Resolution settings 14~21 are YUV encoded.*
2. *RS-232 commands will be not executed unless followed with a carriage return (CR) command and for some systems a Line feed (LF) command. Commands are case-insensitive.*

6.6 OSD Menu

MAIN MENU	SUB MENU	3RD MENU	4TH MENU
DISPLAY	OUTPUT	640×480 60	
		800×600 60	
		1024×768 60	
		1280×768 60	
		1360×768 60	
		1280×720 60	
		1280×800 60	
		1280×1024 60	
		1440×900 60	
		1400×1050 60	
		1680×1050 60	
		1600×1200 60	
		1920×1080 60	
		1920×1200 60	
		1280×720P 60*	
		1920×1080I 60	
		1920×1080P 60	
		720×576P 50	
		1280×720P 50	
		1920×1080I 50	
		1920×1080P 50	

MAIN MENU	SUB MENU	3RD MENU	4TH MENU
DISPLAY	SIZE	OVER SCAN	
		FULL*	
		FOLLOW INPUT	
		PAN SCAN	
		LETTER BOX	
		UNDER 2	
		UNDER 1	
	MODE INFO	OFF	
		INFO*	
		ON	
	INPUT HDCP (HDMI mode only)	OFF	
		ON*	
	PC (PC mode only)	AUTO SETUP	
		H_POSITION	
		V_POSITION	
		PHASE	
		CLOCK	
		WXGA/XGA	**XGA***
			WXGA
		RESET	

MAIN MENU	SUB MENU	3RD MENU	4TH MENU
COLOR	CONTRAST	0~60 (30)	
	BRIGHTNESS	0~60 (30)	
	COLOR	R 0~1023 (512)	
		G 0~1023 (512)	
		B 0~1023 (512)	
		R OFFSET 0~1023 (512)	
		G OFFSET 0~1023 (512)	
		B OFFSET 0~1023 (512)	
	HUE	0~60 (30)	
	SATURATION	0~60 (30)	
	SHARPNESS	0~30 (0)	
	NR.	**OFF***	
		LOW	
		MIDDLE	
		HIGH	
AUDIO	VOLUME	0~100 (100)	
	DELAY	**OFF***	
		40ms	
		110ms	
		150ms	
	SOUND	**ON***	
		MUTE	
	SOURCE (HDMI mode only)*[1]	**AUTO***	
		EXT.	

MAIN MENU	SUB MENU	3RD MENU	4TH MENU
SETUP	FACTORY RESET*[2]		
	KEY LOCK	**OFF***	
		ON	
	POWER SAVE	**OFF***	
		ON	
	IP MODE	**DHCP***	
		STATIC	
	SET STATIC IP	IP ADDRESS	0.0.0.0.~ 255.255.255.255*[3]
		SUBNET MASK	0.0.0.0.~ 255.255.255.255*[4]
		DEF.GETWAY	0.0.0.0.~ 255.255.255.255*[5]
	FREERUN COLOR	BLACK	
		BLUE*	
INFORMATION	INPUT		
	OUTPUT		
	REVISION		
	IP ADDRESS		

Note:

1. *When AUDIO SOURCE sets to 'AUTO', if the selected HDMI input port is connected to an HDMI source, audio signal of the source will be used for output; if the selected HDMI input port is connected to a DVI source, audio signal from the 3.5mm phone-jack on top of the selected HDMI input port will be used. When AUDIO SOURCE sets to 'EXT',only the audio signal from the 3.5mm phone-jack on top of the selected HDMI input port will be used for output.*

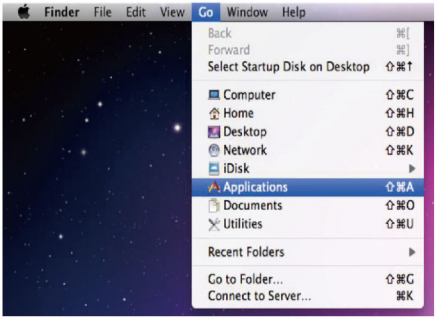
2. *The FACTORY RESET option in the OSD menu will only reset part of settings. For a complete reset of the system, please use the reset button on the remote control.*
3. *192.168.0.1 (Default setting).*
4. *255.255.255.0 (Default setting).*
5. *192.168.0.254 (Default setting).*
6. *Items in* **BOLD** *with an asterisk (*) are the Factory default settings. Items in brackets are the default values for those settings.*

6.7 Telnet Control

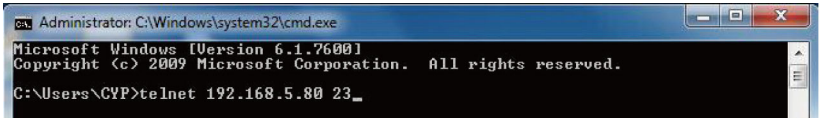
Before attempting to use the Telnet control, ensure that both the Scaler (via the LAN port) and the PC/Laptop or control system being used are connected to the same active network.

To access the Telnet control in Windows 7, click on the 'Start' menu and type 'cmd' into the Search field then press Enter (see below for reference). Under Windows XP, go to the 'Start' menu and click on 'Run', type 'cmd' then press Enter.

Under Mac OS X, go to the file menu then navigate to Go→Applications→Utilities→Terminal (see below for reference).

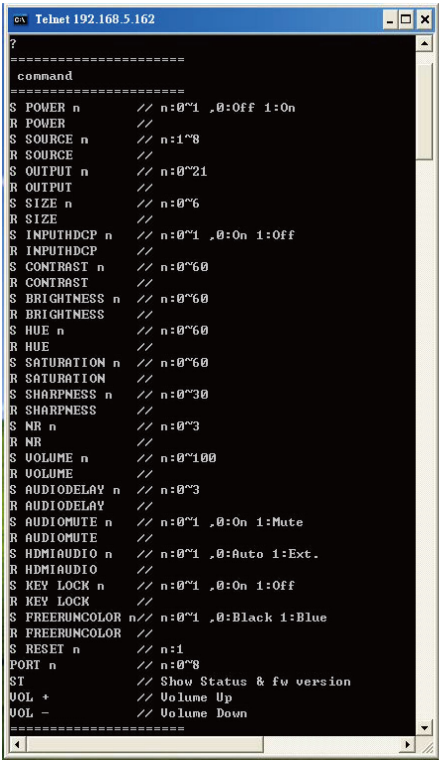


Once in the command line interface (CLI) type 'telnet' along with the IP address of the unit you wish to control (see below for reference). This will bring us into the device which we wish to control.


Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\CYP>telnet 192.168.5.80 23_

Note: The IP address can be obtained from the OSD menu under Information. If the IP is changed then the IP Address required for Telnet access will also needs to be change accordingly.

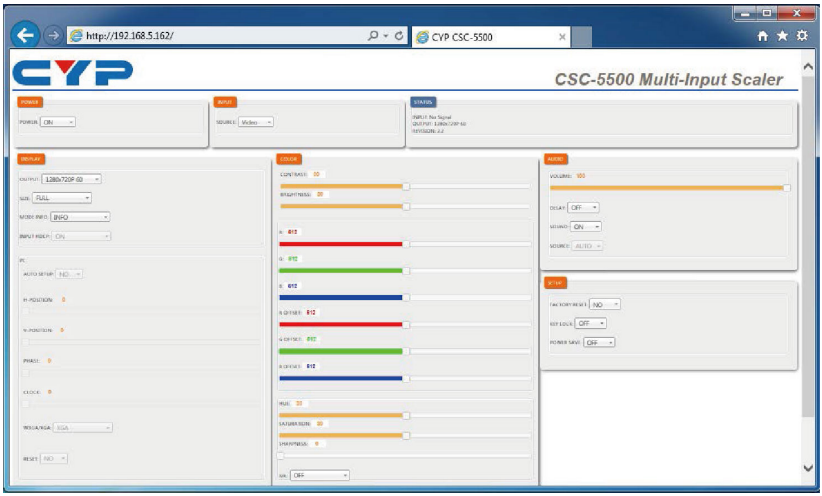
Type '?' to list all the available commands (see below for reference).


Telnet 192.168.5.162
?
command
S POWER n // n:0~1 ,0:Off 1:On
R POWER //
S SOURCE n // n:1~8
R SOURCE //
S OUTPUT n // n:0~21
R OUTPUT //
S SIZE n // n:0~6
R SIZE //
S INPUTHDCP n // n:0~1 ,0:On 1:Off
R INPUTHDCP //
S CONTRAST n // n:0~60
R CONTRAST //
S BRIGHTNESS n // n:0~60
R BRIGHTNESS //
S HUE n // n:0~60
R HUE //
S SATURATION n // n:0~60
R SATURATION //
S SHARPNESS n // n:0~30
R SHARPNESS //
S NR n // n:0~3
R NR //
S VOLUME n // n:0~100
R VOLUME //
S AUDIODELAY n // n:0~3
R AUDIODELAY //
S AUDIOMUTE n // n:0~1 ,0:On 1:Mute
R AUDIOMUTE //
S HDMIAUDIO n // n:0~1 ,0:Auto 1:Ext.
R HDMIAUDIO //
S KEY LOCK n // n:0~1 ,0:On 1:Off
R KEY LOCK //
S FREERUNCOLOR n// n:0~1 ,0:Black 1:Blue
R FREERUNCOLOR //
S RESET n // n:1
PORT n // n:0~8
ST // Show Status & fw version
VOL + // Volume Up
VOL - // Volume Down

Note: All commands will not be executed unless followed by a carriage return. Commands are case-insensitive.

6.8 Web GUI Control

On a PC/Laptop that is connected to same active network as the Scaler, open a web browser and type device's IP address on the web address entry bar. The browser will bring up the control page of the Scaler (see below for reference).



Note: The IP address can be obtained from the OSD menu under Information. If the IP is changed then the IP Address required for Telnet access will also needs to be changed accordingly.

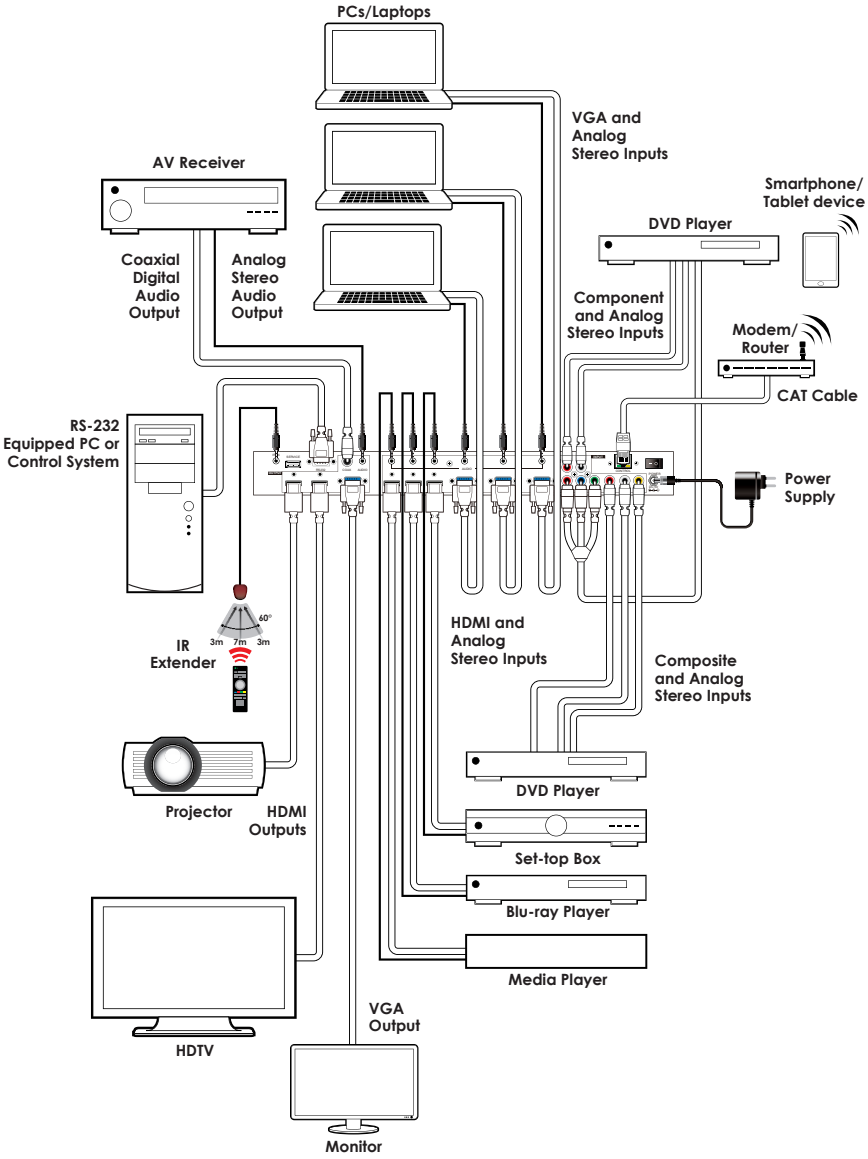
6.9 Input Resolution Support

Input / Resolution	CV	Component	PC	HDMI
NTSC/PAL	✓	-	-	-
480i/576i	-	✓	-	✓
480p/576p	-	✓	-	✓
720p@50/60 Hz	-	✓	-	✓
1080i@50/60 Hz	-	✓	-	✓
1080p@50/60 Hz	-	✓	-	✓
VGA@60/72/75 Hz	-	-	✓	✓
SVGA@56/60/72/75 Hz	-	-	✓	✓
XGA@60/70/75 Hz	-	-	✓	✓
SXGA@60/75 Hz	-	-	✓	✓
UXGA@60 Hz	-	-	✓	✓
1280×800@60 Hz	-	-	✓	✓
1680×1050RB@60 Hz	-	-	✓	✓
1920×1080@60 Hz	-	-	✓	✓
1920×1200@60 Hz (RB)	-	-	✓	✓

6.10 Output Resolution Support

Output / Resolution	PC/HD	HDMI
480p/576p	HD	✓
720p@50/60 Hz	HD	✓
1080i@50/60 Hz	HD	✓
1080p@50/60 Hz	HD	✓
VGA@60 Hz	✓	✓
SVGA@60 Hz	✓	✓
XGA@60 Hz	✓	✓
SXGA@60 Hz	✓	✓
UXGA@60 Hz	✓	✓
1280×768@60 Hz	✓	✓
1280×800@60 Hz	✓	✓
1360×768@60 Hz	✓	✓
1400×1050@60 Hz	✓	✓
1440×900@60 Hz	✓	✓
1680×1050@60 Hz	✓	✓
1920×1200@60 Hz (RB)	✓	✓

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

Input Ports	3×HDMI, 3×VGA, 1×Component Video, 1×Composite Video, 2×RCA (Analog Stereo L/R), 6×3.5mm Mini-jack, 1×Extender, 1×USB (Service), 1×RJ45 (Control), 1×RS-232 (Control)
Output Ports	2×HDMI, 1×VGA/Component Video, 1×Coaxial, 1×3.5mm Mini-jack
Input Resolution Support	Up to UXGA & 1080p
Output Resolution Support	Up to WUXGA (RB) & 1080p
Power Supply	5 V/3 A DC (US/EU standards, CE/FCC/UL certified)
Dimensions	432 mm (W)×183 mm (D)×47 mm (H)
Weight	2,140 g
Chassis Material	Metal
Silkscreen Color	Black
Operating Temperature	0 ˚C ~ 40 ˚C/32 ˚F ~ 104 ˚F
Storage Temperature	−20 ˚C ~ 60 ˚C / −4 ˚F ~ 140 ˚F
Relative Humidity	20 ~ 90 % RH (non-condensing)
Power Consumption	11 W

9. ACRONYMS

ACRONYM	COMPLETE TERM
COMP	Component Video
CV	Composite Video
RGB	Red Green Blue
VGA	Video Graphics Array
UXGA	Ultra Extended Graphics Array
WUXGA	Widescreen Ultra Extended Graphics Array

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Home page: http://www.cypress.com.tw